

REMARKS

Status of the Claims

Claims 1-3, 5, 11, 12, 17, 18, 25, 38, 39, 44, 46, 47, 51, 55, 58, 64, 73, 74, 81, 82, 88, 93, 94, 98, 100, 120, 123, 126, 135, 136, 138, 145, 146, 152, 157, 169, 170, 176 and 186-207 are pending. Claims 186-207 are newly submitted herewith. Support for the new claims is shown in Table One Below. Claims 88, 93, 94, 98, 100, 120, 123, 126, 135, 136, 138, 145, 146, 152, 157, 169, 170, 176 and 197-203 are withdrawn as non-elected.

Claim 43 has been incorporated in amended claim 1, and is hereby canceled. Claims 4, 6-10, 13-16, 19-24, 26-37, 40-42, 45, 48-50, 52-54, 56, 57, 59-63, 65-72, 75-80, 83-87, 89-92, 95-97, 99, 101-119, 121, 122, 124, 125, 127-134, 137, 139-144, 147-151, 153-156, 158-168, 171-175, and 177-185 were previously cancelled.

Claims 1-3, 5, 11, 12, 17, 18, 25, 38, 39, 44, 46, 47, 51, 55, 58, 64, 73, 74, 81, 82 and 186-196, and 204-206 are accordingly presented for further examination at this time.

Claims 1, 25, 46, and 51 have been amended. The other claims remain as originally presented. No new matter has been introduced by the amendments or the new claims.

TABLE ONE- SUPPORT FOR NEW CLAIMS

Claim No.	Support in Specification	Claim No.	Support in Specification
186	<p>plurality of picowells - page 8, lines 15-17;</p> <p>each well configured to hold a living cell of a certain type or a specific maximum number of living cells of said certain type - page 9, lines 23-26</p> <p>a carrier for said picowell – page 11, lines 1-4;</p> <p>the device characterized in that said wells are comprised of integral bottom and side walls, and are open at the tops – page 10, lines 18-19, 27-28</p>	197	P. 13, line 8 thru p. 14, line 2

Claim No.	Support in Specification	Claim No.	Support in Specification
187	Page 12, lines 10-15	198	P. 13, lines 9-11
188	P. 11, lines 12-13	199	P. 14, lines 12-13
189	P. 12, lines 17-18	200	P. 31, lines 20-23
190	P. 11, lines 20-24	201	P. 14, lines 14-15
191	Carrier – p. 11, lines 12-13; Cover – p. 12, lines 22-24	202	P. 14, lines 10-13
192	P. 27, lines 29-31	203	P. 15, lines 14-17
193	P. 27, lines 9-11	204	P. 27, lines 29-31
194	P. 10, lines 8-13 (ceramic given as an example)	205	P. 9, lines 17-19
195	P. 27, lines 14-16	206	P. 9, lines 17-19
196	P. 27, lines 26-27	207	P. 9, lines 23-26

Regarding the Rejection under 35 U.S.C. 103

Claims 1-3, 5, 11, 12, 17, 18, 25, 38, 39, 44, 46, 47, 51, 73, 74, and 82 have been rejected as being unpatentable over Kim published U.S. patent application 2003/0036188 (Kim). This rejection is respectfully traversed.

Claim 1 as amended recites at least two features which are clearly not disclosed, taught or suggested in Kim:

said picowells are unitary structures comprised of a bottom and a side wall integral with said bottom, and

the inside surfaces of said pico wells include a coating of a material that inhibits or delays adherence of cells in said wells.

Additionally, even though Kim uses the term "wells" to describe his support/substrate combination, that use, as well as the Examiner's adoption of it, is exceedingly questionable in light of how one skilled in the art would understand what Kim really discloses.

By way of background, Kim is concerned with the study of cell motility, and both his apparatus and his method are directed to achieving that objective. Those skilled in the art know that for a cell to migrate, i.e., to move under its own power, it must undergo a series of characteristic changes in shape (see figure below):

1. Extension of a lamellipodium or pseudopodium,
2. Adhesion of the extended leading edge to the substratum,
3. Translocation: forward flow (streaming of the cytosol), and
4. Retraction of the cell body to the substratum.

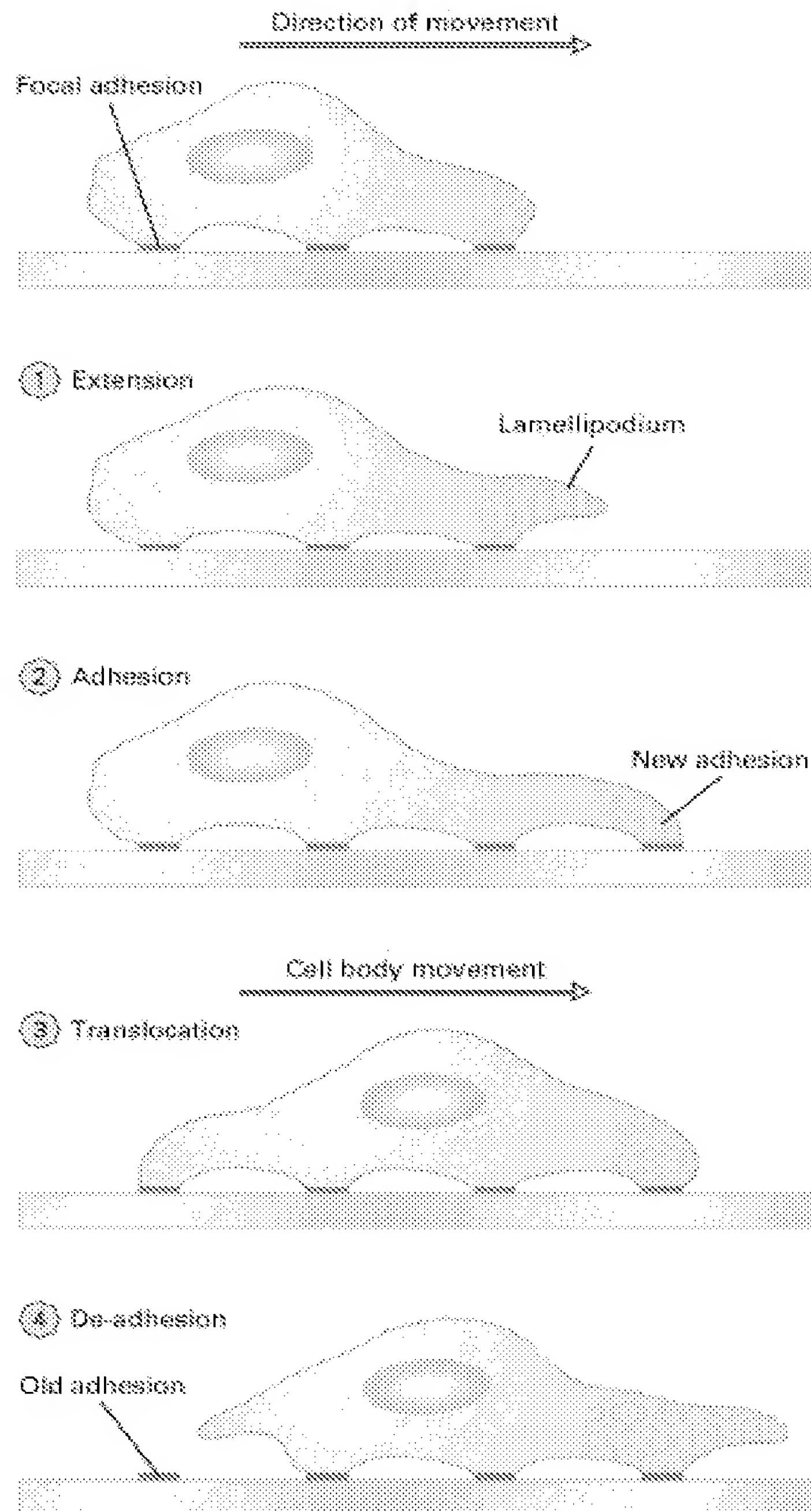


Figure 18-41 Steps in keratinocyte movement

In a fast-moving cell such as a fish epidermal cell, movement begins with extension of one or more lamellipodia from the leading edge of the cell (step 1); some lamellipodia adhere to the substratum via focal adhesions (step 2). Then the bulk of the cytoplasm in the cell body flows forward (step 3). The trailing edge of the cell remains attached to the substratum until the tail eventually detaches and retracts into the cell body (step 4).

(From *Molecular Cell Biology*. 4th edition. Lodish H, Berk A, Zipursky SL, et al. New York: W. H. Freeman; 2000.)

From the foregoing, a person having ordinary skill in the art would understand that for migration to occur, the cell must have a substratum to which its extensions can adhere. Likewise, there must not be any significant obstructions in the path of movement.

As noted above, Kim's construction is designed to satisfy the physical requirements for cell migration study. Thus, referring to FIGS. 1a and 1b, Kim provides a support 140 and a second layer 160 overlying the first layer. First layer 150 includes an array of micro-orifices 300 through which cells may be arrayed on the support 140. Second layer 160 includes a pattern of macro-orifices 170 overlying several micro-orifices.

The micro-orifices 300 in first layer 150 provide passages that define positions at which cells can be patterned, attached, or reversibly or irreversibly immobilized on the upper surface *140a* of the support 140. ... The macro-orifices 170 are arranged in a pattern or array through which test agents or solutions are deposited to contact cells that were previously deposited, attached, or reversibly or irreversibly immobilized to the upper surface *140a* of the support 140. (See Kim, ¶ [0138]).

To provide the unobstructed surface on which the cells can migrate, layers 140 and 160 are separable from support 140 (see ¶[0139]: first layer 150 is lifted from the support, ...or peeled away from the support).

Further, Kim describes a method for *attaching* cells onto a substrate by coating a flat support with a material that causes adherence of the cells to the substrate. in a pre determined array manner. Kim's objective is to provide a high throughput 'cell migration system' used for assessing cell migration and motility (see Figs. 1-7; ¶¶ [0055]. [0073], [0075], [0077], [0079], [081], [0083], [0084], [(0086], [0087, [0133], [0134], [0202], [0216]).

To address the high throughput requirement, Kim patterns cells on a substrate in a known manner by depositing the cells onto a surface coated to assure cell adherence. The coating is provided by a stencil, i.e., a template/layer, having arrayed 'removed sections' (micro/macro orifices) (see Figs. 18, 27, 34; ¶¶ [0067- 0069], [0208], [0209], [0227], [0274], [0229-0235], [0238], [0240], [0242], [0244], [0254-0256], [0258], [0260-0262], [0264] [0281] [0285], [0287],[0290]).

From the foregoing, it should be clear that Kim does not meet the terms of claim 1 as identified above, and it should therefore be allowed. Likewise, claims 2, 3,

5, 11, 12, 17, 18, 38, 39, 44, 46, 47, 51, 55, 58, 64, 73, 74, 81, 82 and 206, which are dependent on claim 1, should also be allowed.

In further regard to claims 55, 58 and 65, it is noted that these claims have been rejected as being unpatentable over Kim in view of Thompson, U.S. patent 4,716,101, and that claim 81 has been rejected as being unpatentable over Kim in view of Leighton, U.S. patent 4,308,351. However, neither of these secondary references overcomes the deficiency in Kim. The result of combining the references will still be a device for studying cell mobility in which the substrate is coated with a material which promotes adherence of the cells to the substrate, and in which the walls and bottom of the pico wells are integral structures.

New claims 186-196, and 204-205 are allowable over the references of record, whether consider alone or in combination.

Independent claim 186 is directed to a device for holding living cells. This claim recites, among other features, that "the device ... [is] characterized in that said wells are comprised of integral bottom and side walls, and are open at the tops."

As explained in detail above, even assuming that Kim discloses what a person having ordinary skill in the art would regard as wells, the disclosed structures do not have "integral bottom and side walls". Claim 186 and its dependent claims 25, 187-196, 204-205, and 207 are therefore patentable over Kim (or Kim in combination with Thompson or Leighton).

In the Restriction Office Action mailed September 2, 2010, the Examiner stated that groups I, II, and V recite the features of claim 1, but that these features are not patentable over Kim. As demonstrated above, Claim 1 is in fact patentable over Kim. The Examiner is therefore respectfully requested to reconsider his holding that groups I, II, and V lack a common technical feature.

In view of the foregoing, favorable reconsideration partial withdrawal of the requirement for restriction, and allowance of this application are respectfully solicited.

Respectfully submitted,

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Enclosures:

- Petition for Extension (Three Months)